

THE USEFULNESS OF
BEHAVIOUR SAMPLING AND
SELECTED PSYCHOMETRIC
MEASURES AS PREDICTORS
OF SUCCESS IN TRAINING CHILD
THERAPISTS AT EXON HOUSE

CENTRE FOR NEWFOUNDLAND STUDIES

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THE USEFULNESS OF BEHAVIOUR SAMPLING
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PREDICTORS OF SUCCESS IN TRAINING CHILD
THERAPISTS AT EXON HOUSE

BY

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE
MASTER OF SCIENCE

Department of Psychology
Memorial University of Newfoundland

March 1978

St. John's

Newfoundland

ACKNOWLEDGEMENTS

There are several people to whom the author wishes to extend deepest thanks for their contributions to this work. To Dr. David S. Hart for his suggestions and comments, but mostly for his endless patience and understanding. To Dr. Jim Barnes, Dr. Rick Roskin and Dr. Graham Skanes for their computer programming ability and statistical knowledge. To Margie and Gary Anderson for their encouragement and friendship. To my family for their long-lasting faith and support.

ABSTRACT

The present study investigated the usefulness of several predictor variables for the selection of effective child therapists working with mentally and physically handicapped people. Several hypotheses were tested: (a) the personality dimensions of neuroticism and introversion are inversely related to success in that those persons high on those dimensions would tend to be the less successful child therapists on the outcome measures of job performance; (b) people with higher expressed social values and (c) more post-secondary education both acquire more knowledge during training and better apply this knowledge on the job; (d) measures obtained from behavioural observation in a pretraining test of application of behaviour modification procedures predict scores on the measures of success, posttraining; (e) knowledge of behaviour modification principles as measured by scores on a written test at pretraining predict scores on measures of success at posttraining.

Subjects who participated in the study were 24 females who had been selected for summer relief work.

at Exon House. All candidates completed the Eysenck Personality Inventory and the Allport/Vernon/Lindzey Study of Values tests. The behaviour sampling observations were obtained by having each subject attempt to teach two self-help skills to a resident. The outcome measures obtained following formal training were repetitions of the (a) written test of behaviour modification principles and (b) the behaviour sampling. The results were: (a) years of education was significantly correlated with job success for both outcome measures ($p < .01$), (b) the more introverted person did better on the written test ($p < .05$), (c) the ratings from one of the behaviour sampling tasks (dressing) correlated with scores on the posttraining written test ($p < .05$), (d) the lower a person's religious value scores, the more effective she was on job performance ($p < .05$).

The implications of these findings and the failure to find support for several of the hypotheses are discussed in terms of the limitations on experimental control and suggestions for future research.

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CHAPTER I

The problem to be investigated concerns the selection of Child Therapist staff who will most successfully be trained for implementing behaviour modification procedures. Direct care attendants in an institution spend a significant amount of time with residents; in fact, all of a child's waking hours are spent in the presence of a Child Therapist. They, therefore, play a very important role in the lives of these individuals: they teach residents self-help skills, cognitive, socialization and motor skills and, in general, they teach a resident ways to achieve an individual level of self-sufficiency. The ultimate aim of a Child Therapist's job is to better prepare residents for life outside the institution. This is not an easy task since progress is slow in many cases, and there is difficulty in creating a normal environment within the confines of an institution. This difficulty often contributes to high frustration levels in staff members, with consequent episodic discouragement and increased sick leave. These are understandable effects, but they are detrimental to the success of ongoing programs.

The present method of selecting staff at Exon House,

an institution for the training of mentally and physically handicapped children, is solely by the face-to-face interview - a very subjective selection. In an attempt to establish the factors which contributed to a select versus reject decision. by this method, it was not surprising to discover the determining variables were at best tenuous and totally subjective such as: dressed well, "nice" personality, the interviewee expressing ideas similar to the interviewer, to name but a few. Westaway (1973) stated that social psychologists speak of two major pitfalls with the subjective interview

1. The 'Halo effect' - the charm of an applicant may lead the interviewer to arrive at over estimates of an applicant's intelligence, administrative ability, etc.
2. Selective disclosure - an applicant discloses only that personal information which is expected to be acceptable.

What was lacking then, was an objective method for selecting the right person for the right job, an objective predictor of success on the job, or at least success in completing an in-service training course. The remainder

of this section will review the alternative approaches, namely, the interview itself, psychometric selection, and behaviour sampling, then conclude with a proposed combination of these procedures for the present study.

The Selection Interview

The employment interview has certainly been used in almost every area of personnel work. However, even within the field of personnel there are many different uses for the interview. It has been used for employment, job analysis, follow-up after placement, exit, vocational counselling appraisal, merit rating and in personal counselling. The obvious question from this would be "Is the interview really measuring what it should?" According to Baker (1969) the employment interview has three distinct purposes: to secure information about the applicant; to give information about the company to an applicant; and to establish a friendly relationship between the company and an applicant.

Reliability and Validity. Over the last 25 years five separate reviews of research of the employment interview have appeared (Mayfield, 1964; Schmitt, 1976).

Ulrich and Trumbo, 1965; Wagner, 1949; Wright, 1969). Each of these reviews discussed dozens of studies and all have concluded that the employment interview, as it is now used, lacks both reliability and validity.

Wagner's (1949) review of 106 papers as cited by Ulrich and Trumbo (1965), showed only 25 studies providing quantitative evidence. The remainder presented a hodge podge of contradictory opinions and how-to-do-it formulas. This situation appears not to have changed, despite a call for a moratorium on how-to-do-it books (England and Patterson, 1960). Wagner (1949) found only 22 validity coefficients which involved 16 of 96 traits rated in various studies. The coefficients ranged from .09 to .94 with a median of .19. The median of five coefficients reported for eleven studies where overall ability was rated was .23. However, Ulrich and Trumbo found that it was not clear from Wagner's review that all of these coefficients represented the validity of the trait ratings against criterion measures of that performance which the interviewers were presumably attempting to predict.

With regard to reliability coefficients, Wagner (1949) found the range from .23 to .97 with a median

of .57 for ratings of specific traits, and from .20 to .85 for ratings of overall ability (median = .53).

A total of 96 different traits were rated, but reliability estimates were reported for only 29.

There appears to be a lack of agreement as to the traits to be included in interview schedules. Appearance, manner, intelligence or mental ability, judgment and voice quality, in that order, appear most frequently, with only intelligence or mental ability yielding coefficients above .40. Wagner suggested that for predictive purposes, the information obtained from an interview should be statistically combined with other data. His reason for this conclusion is that an interviewer may obtain good information from the interviewee but that it is more difficult to effectively weigh and combine this and other information.

Mayfield (1964) cited the findings on lack of validity for the process and echoed Wagner on the lack of empirical studies and the abundance of how-to-do-it articles, manuals and reports of uncontrolled observations. He felt that knowledge of the selection interview

is only a little more advanced than it was at the time of Wagner's (1949) review. Mayfield did feel that two new approaches held promise. They were:

1. Microanalysis of the interview procedure; i.e. studying the component parts of the interview.
2. Studying the process of decision making as it occurs in the selection interview, a break away from studying interview results only.

Mayfield's (1964) main conclusions were:

1. Interview validities are low even for highly reliable interviews.
2. Structured interviews are more reliable than unstructured.
3. Interviewers, even when consistent in their approach to interviewees are inconsistent in their interpretations of data obtained from the interview.
4. Interviewer attitudes bias their judgments.
5. Decisions are made early in the unstructured interview.
6. Intelligence is the trait most validly estimated by an interview.
7. Negative information lends greater weight in

influencing interviewers' decisions.

Ulrich and Trumbo (1969) agreed with previous reviewers' conclusions about the inadequate reliability and validity of interviews but they questioned the functional utility of the face-to-face interview. They felt research should be conducted which separates the predictive validity obtained from the interview, from that obtained from other sources. They found that their review of the literature since 1949 did not permit making the conclusion that the interview could function as a predictor or selection device. The interview combined with other ancillary source data contributed an unknown amount, together with test, personal history and a psychiatric workup, to the predictions. Increasing the length of the interview from one hour to two hours increased the median validity from .30 to .31. This, however, was in combination with test scores and credentials. A structured 30 minute interview, rating prospective doctoral candidates yielded a validity of .51 when interviewer summary ratings were correlated with combined criterion ratings by two faculty members. Whether the interview contributes

a positive, negative or essentially zero value is not readily assessable.

From 75 references only 11 studies reported reliability data. The range for interrater reliabilities for different traits ranged from .15 for one sample to .71 to .78 for another study. Few studies then, have reported reliabilities to begin with; moreover, those reported are lower than what is usually accepted for devices used for individual prediction. Ulrich and Trumbo feel that low reliability remains a serious source of attenuation for any validity coefficients which might be found.

Ulrich and Trumbo (1965), like Mayfield (1964), believe interview research should concentrate on one or two areas as part of a systematic program. They particularly emphasize that the decision making process needs to be studied, hence, a move from earlier studies dealing with data on reliability and validity to studies attempting to understand the interview process itself. This concurs with the conclusions of Schmitt (1976), Baker (1969) and Wright (1969).

Situational Variables. An interesting question posed by Ulrich and Trumbo (1965) is the possibility of focusing the interview on the assessment of the applicant's potential fit to the social context of the job. Very little research has been conducted to date in this direction.

Carlson (1967) conducted studies on situational factors which have been shown to influence the results of interviews. All of his research was carried out with the life insurance industry in his attempts to improve their selection methods. The hypothetical applicants who were then presented had either attended or were attending two-week schools in agency management conducted by the Life Insurance Agency Management Association. Hypothetical applicants were constructed of information with known predictive values, varying the applicants to be evaluated in a systematic manner.

A paper and pencil test was used; 125 items (chosen at random from a total pool of 600 items) of information on a seven-place behavioural description rating scale. Each of the 600 items was evaluated by over 100 managers. Each item was to be considered in isolation

as if that were all he knew about the candidate. The rater also had to check two separate boxes which indicated that this item by itself would either qualify or disqualify an applicant. Results indicated that experienced interviewers did not agree with each other or with themselves on other occasions any more than less experienced interviewers.

Carlson and Mayfield (1967) tried to determine the effects and interactions of three variables which may influence an interviewer's final decision - favourableness, inter and intra rater agreement. Subjects and methodology were as described above for Carlson's (1967) studies. Results indicated that 58 percent of managers would hire applicants constructed from favourable information. While 85 percent rejected those constructed of unfavourable information. This indicates the prepotence of negative information found in other research. A one-month follow-up indicated that 92 percent of managers who earlier rejected one applicant, would do so again, while 80 percent would do so for a select decision and 58 percent for a decision to remain undecided. Thus unfavourable information not only elicits a greater number of employ-

ment decisions but these tend to be more stable over time than favourable information.

Judges evaluated a stimulus subject more conservatively when presented singly than when the same stimulus subject was presented as a member of a sample, according to Carlson (1968).

In a similar study, Carlson (1970) found a stimulus subject is awarded a more extreme evaluation when preceded by a stimulus subject of opposite value.

It has been shown, then, that judgments can be influenced by contextual or situational factors (Carlson 1967), interviewer differences (Carlson 1967, Carlson and Mayfield 1967), applicant differences (Carlson and Mayfield 1967), single interview versus group (Carlson 1968) and order of presentation contrast effect (Carlson 1970). It is difficult to determine however, whether the results are due to the absence of absolute standards on the part of the judges or the unknown validity of the information presented to the interviewers or the treatment condition.

Carlson recommends that the manager practice making

job behaviour predictions in areas such as use of the telephone, night work, etc. For the first time, managers, recognize that they will not be managing the recruits character or how impressive he looks, but rather they recognize that selection should try to predict the recruits performance in these activities.

Before assessing a recruits performance, it is necessary to review the more salient features of interviewer correlates. One of the major problems of interviewing is that of interviewer bias, e.g. red hair spells bad temper, etc. The following section will attempt to show how some placement errors occur due to interviewer correlates.

Interviewer Correlates. A study conducted by Rice (1931) demonstrated the problems of interviewer bias. Rice asked 12 interviewers to interview 2000 homeless men. One of these interviewers was a prohibitionist and another was a socialist. The socialist found 11 percent of the men attributed their downfall to liquor and 60 percent blamed industrial

conditions. The prohibitionist found that 34 percent attributed their downfall to liquor and 43 percent blamed industrial conditions. This clearly shows the effect of the interviewer's strongly held opinions on the type of information collected from the interviewee. Each interviewer had conveyed his own biases to the man being interviewed.

Schmitt (1976) cited a study by Hakel, Hollman and Dunnette (1970) which examined the question of how accurately interviewers can identify the stereotype associated with an ideal job applicant. A forced-choice stereotype accuracy test was developed to determine the accuracy with which employment interviewers, certified Public Accountants, and students could identify the interests of accountants. Though all three groups were equally accurate in identifying CPA interests as evaluated by the number of correct interest choices, there were two distinct clusters, one of CPA's and the other containing employment interviewers, students and four older CPA's. As Schmitt stated, if these stereotypes are important in hiring decisions,

then who is hired will depend on who does the interviewing.

Martin (1970) states: "Employment interviewers do the best they can with what they have. But there is some evidence to support the belief that many subconsciously look for their own image in applicants, or for the image of what they would like to be. No person is completely free of bias; if bias is defined as an emotionally derived opinion. It is, therefore, quite possible that interviewers, no matter how conscientious, will occasionally make placement errors. Unless continuing checks are made to determine the recruiter's placement errors and, of course, steps taken to improve performance, the occasional placement errors will be perpetuated."

Hakel, Dobmeyer and Dunnette (1970) conducted a study to determine three content dimensions (scholastic standing, business experience and interests) in overall suitability ratings of job applicant's resumes. Results showed that significant differences were found for three content dimensions in the order listed above. Interviewers rated resumes portraying applicants with

average grades, excellent work experience and appropriate interests lower than resumes portraying poor work experience and inappropriate interests but high scholastic standing. Scholastic standing appears to place great importance (weight) in an interviewer's decision to hire an applicant.

Conclusions. The above review indicates the difficulty in studying the interview experimentally at the present state of knowledge. Reliability and validity studies have shown a lower than acceptable standard despite many experimental studies attacking numerous interview variables. Situational variables and interviewer characteristics have certainly contributed to the complexity of the decision making process. It is time now to put an end to research on uni-dimensional variables. What is needed is a combination of known selection methods to yield more valid and reliable information. One such method is selection by psychometrics. A brief review of those studies will show its contribution to the selection of the right person for the right job.

Psychometric Selection

The function of Psychological tests is to measure differences between individuals or between the reactions of the same individual on different occasions. Anastasi (1968) points out that one of the first problems that stimulated the development of psychological tests was the identification of the mentally Retarded. Today, the selection and classification of industrial personnel represent relatively recent and rapidly expanding applications of psychological testing. Unfortunately, to date, there are very few reports of the use of psychological tests in the selection of mental health workers.

Anastasi (1969) recommends that psychometric testing be used as an adjunct to skillful interviewing, so that test scores may be properly interpreted in the light of other background information about the individual.

Tarjan, Shotwell and Dingman (1956) developed a screening test for psychiatric technicians from data collected over a five year period. Three prognostic

test scores were obtained on 682 new employees; a psychological score (a brief, self-administered paper and pencil device developed by the authors consisting of 158 items rated on a five-point scale); a similar line supervisor's self-administered five-point scale rating and a rating by the Nursing Education Director from observation of the new employees in the classroom.

The statistical technique employed by these researchers was not described. However, a statement of their results indicated that the psychological score was better able to predict successful technicians than the other two ratings above. Only 34 of the 158 items were found to have sufficiently high validity to be useful in discriminating between successful and unsuccessful technicians. However, had only this limited number of items been used, the turnover rate would have been cut down by an annual average of five percent.

The authors then added new items to the existing 34 items above, which were amenable to objective scoring and selected for their potential ability to tap certain desirable or undesirable traits. They found that the

'theoretically' successful technicians chose answers which presented a consistent personality pattern of a quiet, somewhat withdrawn, at times shy individual with conservative attitudes, a high degree of conformity and an inclination to accept the opinions of others. He was a person who 'attended strictly to business', had few outside interests and was satisfied with his work and job status.

Shotwell, Dingman and Tarjan (1965) compiled a list of 30 statements each describing a mode of thinking which was generally recognized as desirable in a psychiatric technician. Half of the statements were patient oriented, eg. 'setting a good example, for patients through action and speech', and half the statements were non-patient oriented, for example, getting along well with immediate supervisor. The 30 statements were presented to three groups of employees: 40 psychiatric technicians; 20 nursing service supervisors; and 27 professional personnel. Each employee was first asked to indicate how important he considered each of the traits by underlining one of the following terms: 'very important', 'important', 'less important', 'not important'.

Results indicated that professional people placed more importance on patient oriented activities whereas the other two groups placed more importance on job oriented activities. This would indicate a need for line supervisors (who perhaps were once psychiatric technicians) to meet more frequently with professional people in order to develop unanimity of job philosophy.

Psychometric tests may have certain advantages over the interview (standardization; reliability and measured validity), however, the validity is not impressive, particularly for application to individual cases or even small numbers.

Consequently, though psychometrics might have yielded characteristics necessary for an institutional worker, it does not account for or overcome the problem of people exhibiting the same traits but who left shortly after being hired because of disenchantment or disillusionment. This perhaps could have been avoided had all candidates undergone behaviour sampling.

Behaviour Sampling

Psychological tests of the paper and pencil sort, as mentioned in the previous paragraphs, are intended

to sample behaviour for the purposes of inferring how a person will behave at some future point in time. However, the behaviour sample is inferred from the questionnaire answers, not observed directly. Direct behaviour sampling avoids making inferences from self-statements by permitting the actual observation of a candidate's performance on a given task. Therefore, if one can specify what sort of behaviour one wants to predict, then, it is reasonable to propose that direct sampling of those behaviours, such as through overt observation in a simulated job situation, should permit more accurate prediction. The accuracy can be expected to be better since with fewer steps of inference about behaviour, there are fewer opportunities for error in prediction than with questionnaires.

A search of the literature provided no studies on behaviour sampling as defined above.

The only study that approximated behaviour sampling was showing the candidate a film on what behaviour is expected of a worker in the job situation. Wanous (1972) found that showing a new employee a film on the

good and bad aspects of their job results in employees having more realistic job expectations, fewer thoughts of quitting and slightly higher job survival in comparison to those shown only the good aspects of their job. Though the above research does not meet the criteria outlined for behaviour sampling in the present study, it does have merit. If a film showing realistic job components could alter an employee's initial expectations, then behaviour sampling should produce an even greater and longer lasting effect on a person. The actual experience of performing real aspects of a specified job should help the applicant have a more precise and healthier perspective of what actually is expected of him in that particular job.

The Present Study

The above review of the various methods used singly for selection, has still left a void: that of an objective procedure for selecting the right person for the right job. The major weakness of the several approaches is the validity of these methods used singly. That is, they predict successful job performance poorly. The problem is that each predictor variable used alone will

only account for a portion of the variance in the measures of success. By combining a number of predictor variables, each of which accounts for a portion of the variance, a larger portion of the variance in the measures of job performance success can then be explained. Regression analysis will permit the determination of the ability of a set of measures to predict effective child therapists. The approach used in this study attempts to develop an effective combination of predictors using several measures of initial assessment.

Psychometric tests were chosen because of their known wide usage as a selection tool. Furthermore, it is hypothesized that influences from self statements would correlate highly with scores obtained through direct observation from behavioural sampling. If this proved to be true, then, an increase in the validity for predictors would result from a known combination of measures for initial assessment. In addition, psychometric tests are objective, standardized, easy to administer, reliable and require little time.

A major interest of the present study is to assess the usefulness of behaviour sampling for predicting job success of child therapists. It was reasoned that a candidate for the job of child therapist who displayed, pretraining, many of the behaviours expected in a trained therapist, might more likely become a superior therapist when training is completed. A candidate who "naturally" uses some appropriate behaviour modification procedures will find it easier to learn additional ones, because of having a good orientation and partly because that person will not have to unlearn inappropriate training procedures. Behaviour sampling, though a new concept, was chosen because it has face validity in that it scores actual behavioural components from the position applied for. That is, it permits direct observation of performance as opposed to making inferences about behaviour from self-statements. Thus, the study will have candidates for child therapist training assigned to complete training tasks with a child. This will permit direct observation of the

occurrence of appropriate training behaviours.

The observations can then be repeated in the same way after formal training. Behaviour sampling is also objective, requires little time and is easy to administer.

A child therapist, in this institution, needs to possess the qualities of being kind, understanding, with lots of patience and a high regard for people as individuals. According to Allport/Vernon/Lindzey (1970), the variable social value indicates 'a person who most values altruistic and philanthropic love. He is kind, sympathetic, unselfish, valuing other men as ends in themselves' (p.5). For that reason, the social value scale was chosen, in this study, to determine if this, in fact, would prove to be true for the most effective child therapist. It is hypothesized, then, that persons scoring high on the social scale of the Allport/Vernon/Lindzey Study of Values, will perform better in terms of successful job performance.

In addition to the above, for a person to be a successful child therapist, it is essential that she be stable emotionally. The position of child therapist can be

extremely stressful at times and requires a person who can withstand the unpredictable and demanding nature of the institution. She must be able to keep her head on those occasions when, for example, only three of the five staff are on duty, a fight has broken out in one corner and a child who has received a cut calls for help from another. According to Eysenck and Eysenck (1965) a person with a high score on the Neuroticism scale tends to be emotionally over-responsive and to have difficulties in returning to a normal state after emotional experiences... Such individuals are predisposed to develop neurotic disorders under stress... (p.6). Because a child therapist encounters numerous stressful situations throughout the day, it would be expected that child therapists with high Neuroticism scores will experience a high level of anxiety. High anxiety will impair learning and effective job performance. For those reasons, it was decided to use the Neuroticism scale of the Eysenck Personality Inventory.

It is hypothesized, then, that individuals who receive a low score on the Neuroticism scale will be more effective child therapists in job performance success.

Another quality that is preferred and desirable for a child therapist is that of an easygoing, optimistic type of personality who enjoys being with people. A person who is not outgoing tends to be less spontaneous, more socially inhibited, preferring a more stable routine to an ever-changing situation. According to Eysenck a person scoring high on the Extraversion scale of the Eysenck Personality Inventory, tends 'to be outgoing uninhibited, having many social contacts and frequently taking part in group activities... He is carefree, easygoing, optimistic, and likes to laugh and be merry'. (p.6). Contrastingly, the 'typical introvert is a quiet, retiring sort of person... fond of books rather than people; he is reserved and distant... He does not like excitement... and likes a well-ordered mode of life' (p.6). Residents at this institution need much enrichment and stimulation on a constant daily basis.

Persons who are considered exciting and spontaneous can better provide them with the needed variety of activities. Because a more extraverted person enjoys being with people, it is reasoned that such individuals who are candidates for child therapists, would be eager and more receptive to learning more appropriate techniques in behavioural training. It is hypothesized, then, that persons with a high Extraversion score will prove to be the more successful child therapists on job performance.

It is further hypothesized that people with post-secondary education will prove to be the more effective child therapists on job performance. A person who has had more advanced education can be expected to have more knowledge to apply to new situations, to be more able to analyse and integrate new information, and in general to make greater use of her intellectual skills.

In summary, it is predicted that measures of Extraversion, Neuroticism, Social Value, years of education, formal knowledge of behavioural procedures and ratings of task performance from direct observation of overt

behaviour will prove to be a desirable combination for effective prediction of successful job performance.

The following are the specific expectations (hypotheses) from this study:

- (1) Candidates scoring high on the Training Proficiency Scale and the Behaviour Modification Test pre-training, score higher on these same test post-training.
- (2) Candidates with post-secondary education, score higher on both the outcome measures before and after formal training.
- (3) Candidates showing low Neuroticism and high Extraversion as determined by the Eysenck Personality Inventory score better on the outcome measures at the end of formal training.
- (4) Candidates with a high score on the Social Scale of the Allport/Vernon/Lindzey Study of Values at pre-training, score higher on the outcome measures at the end of training.

CHAPTER II

Method

Subjects. The 24 subjects who participated in this study were selected initially from persons applying for positions as Summer Relief Staff. Selection for interviewing was given to those who met the minimal Civil Service educational level of Grade X. Final selection, however, was given to applicants who appeared knowledgeable about retardation, who were composed throughout the interview and who appeared mature and enthusiastic about the existing programs. In other words, subjective data, as agreed upon verbally by the selection board members, usually comprised of the Administrator, the Psychologist and/or the Director of Nursing.

The selected subjects did not have prior practical experience in working with the mentally retarded. The range of education varied from people with Grade X and a keen interest to work with this sector of children to

three years of university and academic courses dealing with mentally retarded people.

Assessment Instruments. Two published psychological tests were used in this study, namely, the Eysenck Personality Inventory (EPI) (Eysenck and Eysenck, 1965) and the Allport/Vernon/Lindzey Study of Values (Allport, Vernon and Lindzey, 1970).

The EPI measures personality in terms of two pervasive, independent dimensions. These dimensions are identified as extraversion-introversion (E scale) and Neuroticism-Stability (N scale). High E scores are indicative of individuals who tend to be outgoing, impulsive and uninhibited, having many social contacts and frequently taking part in group activities, tend to be aggressive and lose their temper quickly. Low E (Introversion) is said to be indicative of a quiet, retiring sort of person, introspective, fond of books rather than people, reserved and distant except to intimate friends. High N scores are indicative of emotional lability and overreactivity. Individuals with high N tend to be emotionally overresponsive and to have difficulties in returning to a normal state.

after emotional experiences. They frequently complain of vague somatic upsets of a minor kind eg. headache, insomnia etc., also they are predisposed to develop neurotic disorders under stress.

Each of these traits is measured by means of 24 questions, selected on the basis of item and factor analyses, to which the examinee answers "yes" or "no". A response distortion (lie) scale is also included to detect attempts to falsify responses. The form is brief, consisting of 57 items which can be administered easily in about 10 minutes, yet has adequate reliability for individual use. The reported test-retest reliabilities for this test are quite satisfactory, between .80 and .97 for the separate forms with approximately one year elapsing between the tests.

The Allport/Vernon/Lindzey Study of Values aims to measure the relative prominence of six basic interests or motives in personality: the theoretical, economic, aesthetic, social, political and religious. The classification of personal values is based upon a typology which argues and defends the view that personalities of men are best known through a study of

their values or evaluative attitudes. It is a self-scoring test consisting of a number of questions, based upon a variety of familiar situations to which two alternative answers in Part I and four alternative answers in Part II are provided. In all, there are 120 items, 20 of which refer to each of the six values. Standardization of these tests was carried out on a group of 780 subjects of both sexes from six different colleges. The test-retest reliability coefficient was .89 for the one-month study and .88 for the two month interval. The split-half reliability for the social value was .90 whereas the repeat reliability (stability) for the social value was .77 for the one month score and .88 for the two month test. The dominant interest of the theoretical man in the discovery of truth; the economic man is characteristically interested in what is useful; the aesthetic man sees his highest value in form and harmony; the highest value for the social type is love of people; the political man is interested primarily in power; and the highest value of the religious man may be called unity.

There are several studies which give some support to the hypothesis that high social value predicts who will be successful in particular areas of work. For this study, the social value was of particular interest. Youmans (1961) demonstrated that high social values have a positive relationship ($p < .01$) with social service interest.

Baldwin (1960) using the social value score found that social aggressiveness was positively related to memory for details on the job. He stated that some aspects of job performance are better measured by cognitive variables while others are better measured by personality variables.

Luzzi (1970) attempted to determine the relationship between social value and the effectiveness of rehabilitation workers. His findings indicated that social value can be used as a partial predictor and might prove to be a very reasonable adjunct to the current criteria of selection and evaluation of new students.

A scale designed to assess the training proficiency of staff or trainees enrolled in a Behaviour Modification

Training Program is the Training Proficiency Scale (TPS) (Watson, 1974). This scale utilized a 5-point rating scale. It consists of five sub-scales: Shaping Behaviour, Reinforcements, Communication, Data Collection and Miscellaneous. There are 44 items in the scale permitting the rater to score each item as he makes a decision about its occurrence and quality. Interrater reliabilities averaged .938 after the latest revision of the scale but the range varied from .872 in less structured situations such as language programs to a high of 1.00 in structured programs dealing with self-help skills. This test measures the proficiency in applying Behaviour Modification techniques. An example of a scale item is 'Gives reward quickly'. This item would then be assigned a number from 1 to 5 ranging from 1- 'behaviour never occurred' or 'quality was unacceptable' to 5- 'behaviour occurred every time' or 'quality was excellent'.

The Behaviour Modification Test (BMT) (Gardner, Brust and Watson, 1970) is a 229 item true-false test that measures knowledge of behaviour modification

principles. An example of a question is 'extinction means removing reinforcement'. Scores on the BMT have been found to correlate highly with scores on the TPS ($r = 0.89$), indicating that knowledge of behaviour modification techniques are related to practice.

These measures were chosen for two reasons:

1. They have been standardized, and have been found to yield high inter-rater reliabilities between judges and between tests.
2. The programmed in-service training course used to teach behaviour modification is by Dr. Luke Watson, one of the three persons who devised the scales to assess the effects of the course.

The Training Proficiency Scale was used to determine an individual's natural ability to apply behaviour modification principles to retarded children. This test was administered pre and post training to determine the degree of skill acquired as a result of training.

The Behaviour Modification Test was also adminis-

tered pre and post training to determine the knowledge of behaviour modification principles acquired through the in-service training program. This also determined whether high scores on the training proficiency scale were associated with high scores on the behaviour modification test.

Pretraining Procedure. All subjects were asked to complete four tests on the first morning of work. This included the Eysenck Personality Inventory, the Allport/Vernon/Lindzey Study of Values, the Behaviour Modification Test and the Training Proficiency Scale.

Instructions followed the general format outlined below:

"Miss X, because this is a new position, it might be helpful for you to spend some time with a child or two for a few minutes each and attempt to teach each a self-help skill. This will give you a better insight into the kind of tasks you'll be involved in once you start work, as well as seeing first hand,

what we are attempting to accomplish here
at Exon House.

There will be a Child Therapist II in
the room with you, and though she'll be busy
for the most part with paper work, she'll be
able to assist you should the child be some-
what unmanageable.

We would like you to spend approximately
15 minutes with each child, just time to at-
tempt each task. The Child Therapist II will
let you know when 15 minutes has passed.

The first child's name is _____
and he is _____ years old. _____ has not
yet learned to undress himself so we would like
you to try and teach him to do this. Don't
be too concerned at this point that you do not
feel confident with this task. We are fully
aware that you have not had any training as
yet so just go about it the way you think you
can best accomplish this task.

The second child's name is _____
and he/she is _____ years old. This time we /

would like you to teach _____ to eat some applesauce with a spoon. Again, just go about it the way you feel you can best accomplish this.

At this point, the employee entered a room that was occupied by a resident from Exon House and the Child Therapist II (observer/scorer). The resident was seated on a chair, with an oversized sweater by his side. Following an introduction of the two, the employee proceeded to teach the resident the skill of removing his sweater. Upon completion of the first task, a bowl of applesauce and a spoon were placed on a table close to the employee, who then attempted to teach the resident the skill of self-feeding.

The above two self-help skills are taught in great detail during the role-playing section of the Inservice Training Program and were felt to be most appropriate for a pre-training indication of a person's natural ability to apply behaviour modification skills. The 30 minute time period was chosen because it constituted:

1. An acceptable amount of time to spend with a child for the child's first teaching session.
2. An acceptable amount of time for the employee who more than likely would be under some stress in (a) a novel situation and (b) performing novel tasks.
3. An adequate amount of time for the observer to observe and score items from the Training Proficiency Scale. These observations were on the individual employee interacting and displaying natural behaviours - be they appropriate or inappropriate for behaviour modification.

The observer-scorers had training sessions for scoring test items as observed on children and present employees at Exon House. There were four observers trained by the investigator before the study commenced by the Psychologist. This ensured that one or more supervisors would always be on duty since two of these Child Therapists II's were working permanent days when the assessments were done. The observers had been employed as supervisors, on different units at Exon House, for approximately 10 months at the time of assessment and all four had varying amounts of University education;

from one year to four. These observers attended the same training sessions together but scored independently. This independent duplicate scoring continued until a 95 percent level of agreement existed among the ratings of the scores of the Psychologist and the Child Therapist II's. The level of agreement was obtained by dividing the number of agreements by the number of agreements plus disagreements.

One observer, during the experimental situation, was at a table with the score sheet, seated in such a way as to observe the resident and the employee. The employee had a small table at her side with four different kinds of primary reinforcers; smarties, chips, soft drink and a chocolate bar. The employee might not have used these reinforcers but the option was there to provide a pre-training measure of behaviour modification skills presently within the individual's repertoire. The employee was then observed and scored for the procedures used to teach the child to (a) undress (take off sweater) and to (b) the self-help skill of eating, at which point a bowl of applesauce and a spoon was placed on the table.

Following the test, all subjects worked on their assigned units for one to two weeks before beginning the in-service training sessions. This was considered an orientation/adjustment period for the new employees to familiarize and adequately prepare subjects for training. The training program (Bassinger et al, 1971) was designed for institutional staff working with the mentally retarded. It consisted of self-instruction, lecture and role-playing techniques for the purposes of acquiring knowledge of principles of behaviour modification. The program consisted of seven sessions, each of which was approximately two to three hours long. The last four sessions placed greater emphasis on role-playing techniques.

Approximately 10 days following completion of the training course the Behaviour Modification Test was again administered to the subjects to determine the knowledge that was acquired from the training program. An assessment of the application of the behavioural principles from the Training Proficiency Scale was then conducted on the unit. One of the original four trained observers scored the subject using the same criteria that were used at pretraining. This time, however, the setting was not simulated in a room but

rather, took place, blind to the subject, when she was assigned to conduct an individual session with a resident. The self- help skill of feeding and dressing as well as, the one-to-one ratio of therapist to resident, therefore, remained constant pre and post training.

CHAPTER III

Results

Pearson Correlation Coefficients were calculated for each pair of variables (Table 1). A number of predictor variables were expected to correlate well with the outcome variables, Behaviour Modification Test (posttraining), and Training Proficiency Scale (posttraining).

Correlations with Behaviour Modification Test (posttraining).

It was hypothesized that the more knowledge a person possessed before formal training, the higher would be the score on the written test at the conclusion of formal training. This was confirmed in that the correlation between Behaviour Modification Tests, pre and post training was positive and significant ($r = .4068$, $df = 22$, $p < .05$). The mean post training score was higher than the pretraining score ($t = 6.53$, $df = 23$, $p < .01$); for raw scores, see Appendix A).

It was further hypothesized that people who had more post-secondary education would acquire more

Table 1
Correlation Coefficients for all Pairs of
Predictors and Outcome Measures
(N = 24)

	Modification (Pre-train)	Training Proficiency Scale	Education	Introversion	Neuroticism	Behaviour Modification (Pre-train)	Training Proficiency Scale (Feed)	Training Proficiency Scale (Dress)	Allport, Vernon, Theoretical	Economic
Training Proficiency Scale	0.3319*									
Education	.6946**	.4536**								
Introversion	-.4286**	-.3708*	-.2141							
Neuroticism	-.3781*	-.0660	-.2193	.1393						
Behaviour Modification (Pre-train)	.4068*	.2280	.3775*	-.1181	.1179					
Training Proficiency Scale (Feed)	.2462	.1473	.1147	-.0705	-.2703	.2726				
Training Proficiency Scale (Dress)	.4606**	.0074	.3366*	.0638	-.4510**	.1777	.6397***			
Allport, Vernon, Study of Values	.2111	.0147	.2692	.0772	.2052	.3077	.1402	.4284**		
Theoretical										
Economic	-.0944	.0335	-.0961	.3290*	.0129	-.1911	.3259	.3659 *	.2003	
Aesthetic	.3473	.2200	.2471	-.1575	.3770*	.4944*	-.0853	-.2966	.0892	.1055
Social	.1281	.1753	.0414	-.3309*	.3309*	-.3907*	-.2158	-.1893	-.5262	-.4905
Political	-.3233	-.0064	-.1920	.2925	.2925	-.0752	-.0269	.0427	-.0299	.0136
Religious	-.1867	-.4595**	-.2682	.0120	.0120	-.0693	-.0630	-.1785	-.3636	-.3460

Note: * = .05 level of significance
 ** = .01 level of significance
 *** = .001 level of significance

Table 1
Correlation Coefficients for all Pairs of
Predictors and Outcome Measures
(N = 24)

	Training Proficiency Scale	Intero- version	Neuro- ticism	Behaviour Pretraining)	Proficiency Scale (Feed	Proficiency Scale Dress	retical	on-	Aes- thetic	Social	ical
0*											
6**	.4536**										
6**	-.3708*	-.2141									
1*	-.0660	-.2193	.1393								
*	.2280	.3775*	-.1181	.1179							
2	.1473	.1147	-.0705	.2703	.2726						
6**	.0074	.3366*	.0638	.4510**	.1777	.6397***					
	.0147	.2692	.0772	.2052	.3077	.1402	.4284**				
4	.0335	-.0961	.3290*	.0129	-.1911	.3259	.3659 *	.2003			
3	.2200	.2471	-.1575	.3770*	.4944*	-.0853	-.2966	.0892	-.1055		
1	.1753	.0414	-.3309*	.3309*	-.3907*	-.2158	-.1893	-.5262	-.4905	.2753	
3	-.0064	-.1920	.2925	.2925	-.0752	-.0269	.0427	-.0299	.0136	.4618	-.0263
	-.4595**	-.2682	.0120	.0120	-.0693	-.0630	-.1785	-.3636	-.3460	.3002	-.2246
											-.162

Note: * = .05 level of significance
 ** = .01 level of significance
 *** = .001 level of significance

knowledge during formal training. This also was shown to be true as the correlation between years of education and Behaviour Modification (posttraining) was positive and significant ($r = .6946$, $df = 22$, $p < .001$).

It was hypothesized that those candidates who scored high on the Extraversion scale of the Eysenck Personality Inventory would be more effective child therapists on the job and presumably would possess more knowledge of behaviour modification. The reverse was shown to be true since the correlation coefficient between Extraversion and Behaviour Modification Test (posttraining) was negative and significant ($r = -.4286$, $df = 22$, $p < .05$). This result is consistent with findings by Tarjan et al (1956) that successful psychiatric technicians tended to have introverted personality characteristics.

Other predictor variables were not significantly correlated with the outcome variable Behaviour Modification Test (posttraining).

Correlations with the Training Proficiency Scale (posttraining)

It was hypothesized that candidates who obtained a high score on the application of behaviour modification

higher score on those same measures after training. This was not supported in this study as neither TPS feed nor dress were significantly correlated with the posttraining measure of Training Proficiency Scale.

* It was also hypothesized that candidates who had post-secondary education would be the more effective child therapists on job performance. This was shown to be true in this research since the correlation coefficient between education and the Training Proficiency Scale was positive and significant ($r = .4536$, $df = 22$, $p < .01$).

It was further hypothesized that candidates who scored high on the knowledge test, posttraining, would also score high on the application test and be the more effective child therapists. This was shown to be true in that the correlation between the posttraining measures on the Behaviour Modification Test and the Training Proficiency Scale test was positive and marginally significant ($r = .3319$, $df = 22$, $p < .05$).

The Religious Value Scale, from the Allport/Vernon/Lindzey Study of Values (though this was not predicted), was found to correlate highly with the outcome variable, Training Proficiency Scale (and is negative and significant), ($r = -.4595$, $df = 22$, $p = .01$).

It should be noted that the direction of the relationship is negative, therefore, a high score on the religious scale is associated with a low Training Proficiency Scale (posttraining) rating.

Other predictor variables were not significantly correlated with the outcome measure on Training Proficiency Scale.

Multiple Regression Analyses

To test the prediction that a number of predictor variables, combined, would be more useful than when used separately, a stepwise Multiple Regression Analyses was performed for each of the outcome measures.

The results of the Multiple Regression Analyses on Behaviour Modification Test (posttraining) revealed that only three variables contributed significantly to the Multiple Regression Correlation Coefficient.

These were years of education ($R^2 = .48$, $df = 22$, $F = 20.51$, $p < .05$), Extraversion ($R^2 = .56$, $df = 21$, $F = 13.61$, $p < .05$), and Training Proficiency Scale (dress), ($R^2 = .65$, $df = 20$, $F = 12.19$, $p < .05$).

The results of the Multiple Regression Analyses on Training Proficiency Scale (posttraining) revealed that only one variable contributed significantly to the Multiple Regression Coefficient. This was the religious scale from the Allport/Vernon/Lindzey Study of Values ($R^2 = .21$, $df = 22$, $F = 5.9$, $p .05$).

CHAPTER IV

Discussion

This study attempted to determine predictors for selecting effective child therapists who work with mentally and physically handicapped people.

As predicted, it was found that the more knowledge a person had of behaviour modification the better she was in performance of behavioural procedures. These results replicate the findings of Gardner, Brust and Watson (1970) who found the two measures to be highly correlated ($r = .89$). However, the present correlation was weaker ($r = .70$) and was significant only at posttraining. Pre-training scores on a test of knowledge of behaviour modification would appear to be of independent value as a predictor of level of posttraining performance, although the knowledge-practice relationship holds for posttraining scores.

Psychometric Tests

It was felt that the inclusion of the more

widely used standardized psychometric tests would serve as an adjunct to the new concept of direct observation in a simulated work situation. Consequently, the Eysenck Personality Inventory was used in conjunction with the Allport/Vernon/Lindzey Study of Values.

Only two significant findings were obtained between any of the psychometric scores and the outcome measures. Neither of these was predicted. Extraversion was found to be negatively correlated with Behaviour Modification Test (posttraining) and, the religious value scale was negatively correlated with the Training Proficiency Scale (posttraining).

Introverts, then, do better on the written measures of their success on training. However, the extraversion-intraversion dimension appears not to be related to the application of the same information.

According to Eysenck, the typical introvert is "fond of books rather than people He is reliable (p.6)." This may reflect that introverts are more conscientious and more eager to meet standards than extraverts. This

notion of an introvert to be more conscientious and studious was found to be true in this study and lends support to the findings of Tarjan et al. (1956) reported earlier. A look at data for individuals who scored towards introversion showed them to be the same people who scored higher on the knowledge test than the extraverts.

People who were relatively low on the religious value scale were found to be the more effective child therapists on the task for which they were rated:

There was no evidence found to support any clear interpretation of the religious scale (Hunt, 1968). However, several studies concluded that people who scored low on this scale were more liberal in attitude. This could be taken that people with low scores on religion are open to changing their own behaviour and more accepting of deviant behaviour in others. If this is the case, they would more readily adjust to learning new methods of teaching mentally retarded people.

Behaviour Sampling

It was expected that the two scores from the Training Proficiency Scale (pretraining) would be the

best predictors of the outcome measures. However, neither of these correlated significantly with the behavioural outcome measure, and only one with the written test. The Training Proficiency Scale (dress) correlated moderately well with the Behaviour Modification Test (posttraining) and was shown by Multiple Regression Analyses to account for a significant portion of the variance for that outcome measure. The difference in effectiveness between the feeding and dressing components of the Training Proficiency Scale is probably because the test situation for dressing provides more opportunity for the candidate to display scorable behaviours. This is a complex task involving a procedure known in behaviour modification as backward chaining. Basically, a task is broken down into its component parts and the final stage is taught first until the learner has mastered that skill. The teaching of the task of feeding, generally occurred shortly before lunch time. The residents were hungry and, therefore, learned the skill quickly without requiring much physical prompting. In any further attempts to use behaviour sampl-

ing for selection purposes, particular care should be taken to ensure the candidate has ample opportunity to display the desired behaviours.

The Training Proficiency Scale (feed) did not contribute to the prediction of the outcome measures and was less than an adequate test for prediction. Had a different situation, other than feeding, been used then, perhaps the behavioural pretest might have correlated better with the Training Proficiency Scale (posttraining). Possibly the poor correlation occurred because the Training Proficiency Scale (pretraining) measures were obtained in the context of selection procedures while the Training Proficiency Scale (post-training) was done in the context of routine unit work. It seems likely that the difference between these situations accounts for the fact that there was very little correlation between the Training Proficiency Scale (pre and post-training).

One way of overcoming this problem might be to have a candidate for selection come as a volunteer, directly to the unit. A trained rater on the unit could then have an opportunity to score the candidate

in the context of an assigned training task with a resident. Another way is simply to inform the candidates in both situations that they are being rated. This would create an explicit test situation on both occasions.

Years of Education

Years of education correlated very highly with both of the outcome measures on Training Proficiency Scale and the Behaviour Modification Test. It is likely the case that those people with more years of education were more intelligent (Wechsler, 1958) and were thus better able to make good use of new knowledge, such as of behaviour modification. Since the pretraining behaviour modification scores did not effectively predict those at posttraining it appears that it is educational level rather than specific prior training that predicts which trainees will most benefit from training with respect to both written and practical work.

The finding that the pretraining written behaviour modification test correlated well with some

measure of posttraining, yet, failed to account for a significant portion of the variance of the multiple regression, is probably because the initial scores are largely a function of years of education, the most potent predictor variable.

Conclusions

Despite the finding of several significant correlations between predictor and outcome scores the results of this study do not provide good evidence for use of a set of selection measures. From the outset it was appreciated that there were limitations imposed by the requirements of the institution. It was not possible to select a sample of trainees which would permit the predictive ability of the measures to be adequately assessed. Neither was it possible to randomly assign applicants for training and thus provide a wide range of initial variation. The nature of the work necessitated careful screening. A longer follow-up would have permitted the use of more informa-

tion about the trainees' success as child therapists , but the nature of summer relief work prevented this. On the other hand, the fact that the summer relief workers began in a group together provided the only opportunity for attempting the study.

Clearly, years of education is the best predictor to emerge from the present study. Surprisingly, it was also found that introverted people make the most successful child therapists. The behaviour sampling measures are worth further study.

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APPENDICES

APPENDIX A

RAW SCORES

<u>APPLICANTS</u>	<u>EXTRAVERSION</u>	<u>NEUROTICISM</u>
1	14	8
2	11	4
3	12	10
4	5	12
5	15	7
6	14	11
7	10	4
8	10	8
9	15	10
10	10	8
11	9	4
12	13	3
13	14	9
14	14	11
15	16	6
16	5	8
17	17	12
18	17	7
19	13	6
20	11	9
21	21	11
22	18	12
23	22	6
24	13	13
	\bar{X} 13.29	\bar{X} 8.29
	sd 4.175	sd 1.911

APPENDIX B

RAW SCORES

ALLPORT/VERNON/LINDZEY STUDY OF VALUES

APPLICANTS	THEORETICAL	ECONOMIC	AESTHETIC	SOCIAL	POLITICAL	RELIGIOUS
1	50	33	42	41	42	32
2	44	44	32	55	40	25
3	38	26	36	59	43	38
4	41	35	50	54	27	33
5	45	39	33	47	42	34
6	36	33	35	55	46	35
7	38	38	28	56	37	43
8	39	41	35	53	38	34
9	43	34	35	48	29	51
10	42	30	53	45	31	39
11	33	28	32	54	39	54
12	35	33	30	60	41	41
13	33	45	38	49	40	35
14	47	40	33	43	34	43
15	46	34	30	46	42	42
16	30	24	43	61	39	43
17	45	34	47	55	36	23
18	38	36	31	45	50	40
19	44	41	51	30	41	33
20	38	25	38	56	37	46
21	40	39	36	42	41	43
22	41	36	37	45	39	42
23	27	37	44	54	35	43
24	43	42	42	31	36	46

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APPENDIX C

BEHAVIOUR MODIFICATION TEST SCORES

<u>APPLICANT</u>	<u>PRETRAINING</u>	<u>POSTTRAINING</u>
	<u>1</u>	<u>2</u>
1	74%	94%
2	68%	91%
3	77%	79%
4	68%	91%
5	71%	73%
6	65%	71%
7	62%	80%
8	56%	76%
9	74%	91%
10	70%	83%
11	70%	79%
12	56%	80%
13	65%	83%
14	67%	71%
15	71%	89%
16	74%	85%
17	71%	74%
18	64%	68%
19	86%	88%
20	67%	77%
21	61%	64%
22	64%	68%
23	67%	82%
24	73%	71%
	\bar{X} 68.38	79.50
	sd 6.579	8.454

APPENDIX D
RAW SCORES
TRAINING PROFICIENCY SCALE

<u>CASES</u>	<u>PRETRAINING</u>		<u>POSTTRAINING</u>
	<u>FEED</u>	<u>DRESS</u>	
1	.353	.330	.488
2	.385	.361	.477
3	.300	.353	.464
4	.285	.315	.762
5	.292	.292	.392
6	.315	.376	.328
7	.315	.353	.392
8	.453	.415	.596
9	.353	.346	.458
10	.315	.367	.472
11	.492	.523	.480
12	.507	.415	.762
13	.592	.415	.468
14	.315	.346	.790
15	.385	.385	.592
16	.362	.392	.467
17	.308	.400	.480
18	.338	.346	.333
19	.400	.408	.450
20	.331	.331	.757
21	.500	.461	.458
22	.453	.369	.790
23	.408	.539	.737
24	.362	.415	.546
	\bar{X}	.367	.539
	sd	.110	.226

